REMARKS

Applicants respectfully request favorable reconsideration of this application.

Claims 1-3 and 5-12 are pending.

Priority

Applicants thank the Examiner for bringing to the Applicants' attention an error in the bibliographic data sheet. The bibliographic data sheet includes an erroneous filing date of May 30, 2003 for Japanese patent application 2002-157328. The date should be May 30, 2002. Applicants respectfully note that the correct date of May 30, 2002 was stated in the Combined Declaration and Power of Attorney and in the Application Data Sheet filed with the U.S.P.T.O. A Request for Corrected Filing Receipt is filed with this paper requesting for the correction of the error.

Examiner Interview

Applicants thank the Examiner, Mark L. Shevin, for the telephonic interview held on July 21, 2009 with Applicants' representatives Curtis B. Hamre and Alexander J. Kim regarding the above-referenced application. At the interview, Nishi (US 4847048) was discussed. The Examiner indicated an understanding as to the Applicants' position that the Nishi reference teaches an alloy requiring the presence of Nickel. Also at the interview, Jin (JP 01-068440) was discussed. The Examiner agreed to send a copy of the full English translation of the Jin reference to Applicants for review, which Applicants received. Applicants thank the Examiner for sending the full English translation of the Jin reference. No agreement was reached.

Declaration Under 37 CFR §1.132

Applicants respectfully submit Declaration Under 37 CFR §1.132 with this paper. The Declaration is by Yusuke Toyoda, the first named inventor of the above-referenced application.

Claim Rejections – 35 USC § 103

Claims 1, 2, 6, and 8 were rejected under 35 USC 103(a) as being unpatentable over Winkler (EP 918095 A1). Applicants respectfully traverse.

The Office Action conceded that Winkler fails to teach the specific sum and ratio of Ti to Zr. As can be seen in Fig. 1 of the above-referenced application, the claimed sum (Ti+Zr) of the amounts of Ti and Zr with ratio (Ti/Zr) are critical to achieving the superior elongation to the prior art alloys (also see Tables 1 and 2). The Declaration of Yusuke Toyoda states "the specific range of Ti+Zr and the specific range of Ti/Zr, as claimed in the application, are critical to the advantageous physical property of the alloy" (item 12, page 3). The Declaration also states that the "advantages achievable by specifying the Ti+Zr amount and the Ti/Zr ratio in an aluminum alloy are unexpected" and are "of statistical and practical significance" (see charts on page 3 and items 13-14 on pages 3-4). Further, Winkler teaches that Ti is an optional element in the alloy (the lower limit of Ti in Winkler is zero). In contrast, the claims 1, 2, 6, and 8 require and it is critical that the "ratio (Ti/Zr) of the amounts of Ti and Zr added of at least 0.3 but not more than 2." Further, Winkler does not even consider the elongation (%) of alloys as a desirable physical property of the alloys. Thus, the advantages achievable by specifying the Ti+Zr amount and the Ti/Zr ratio as claimed are unexpected and not obvious in view of Winkler. Therefore, based on the entire record by a preponderance of the evidence, including Winkler and the Declaration, claims 1, 2, 6, and 8 are patentable in view of Winkler. Applicants respectfully request a favorable reconsideration of the claims.

Claims 1-3 and 5-9 were rejected under 35 USC 103(a) as being unpatentable over Spanjers et al. (US 2002/0006352 A1). Applicants respectfully traverse.

Regarding claims 1, 6, and 8, the Office Action conceded that Spanjers et al. fails to teach the specific sum and ratio of Ti to Zr. In fact, Spanjers et al. teaches that both Ti and Zr are optional elements but Zn must be present. Spanjers et al. teaches that Zn materially affects and is the main element that affects the physical strength to the as-cast condition and the welded joins of the alloy. Spanjers et al. teaches that Zn is "essential" and must be present in a range of 0.10 to 1.5 % to provide the advantageous strength improvement (see paragraphs [0042]-[0043]). In contrast, claims 1 and 8 do not require Zn, an element which materially affects the alloy.

In EXAMPLE 1 of Spanjers et al., alloy 1 has the sum (Ti+Zr) of 0.12 wt % and the ratio (Ti/Zr) of 0.09 (see TABLE 1). In the same EXAMPLE, alloy 2 has the sum (Ti+Zr) of 0.13 wt % and the ratio (Ti/Zr) of 0.08 (see TABLE 1). The Elongation ranges merely from 7.0 % to 14.2 % (see TABLE 2).

Further, in EXAMPLE 2 of Spanjers et al., alloys 1-4 have the sum (Ti+Zr) of 0.13 wt % or 0.14 wt %, and the ratio (Ti/Zr) of 0.08 (see TABLE 3). Every alloy example in Spanjers et al. includes Zn, from 0.42 wt % to 0.62 wt % (see TABLES 1 and 3). The Elongation ranges from 13 % to 23 % (see TABLE 4).

Spanjers et al. teaches that alloys 2 and 3, having elongations of 17 % and 23 %, respectively, have "essentially the same composition" and that the "difference in mechanical properties are ... due to the difference in plate thickness" (paragraph [0063]). Thus, Spanjers et al. teaches an alloy having elongation generally in the range of 7.0 % to 17 %, and indicates a belief that higher elongation may be achieved merely by changing the thickness of the as-cast alloy. Thus, Spanjers et al. failed to recognize and teaches away from controlling the elemental composition amounts to achieve superior elongation. Spanjers et al. does not even suggest that superior elongation may be achieved by specifying the Ti+Zr amount and the Ti/Zr ratio.

In contrast, claims 1, 6, and 8 require a sum (Ti + Zr) equal to or greater than 0.3 wt %, and a ratio (Ti/Zr) of at least 0.3 but not more than 2. Advantageously, this critical feature allows for superior elongation of equal to or greater than 20%, as shown in Fig. 1 in the Specification and in the Declaration. The advantages achievable by specifying the Ti+Zr amount and the Ti/Zr ratio as claimed are unexpected and not obvious in view of Spanjers et al. Therefore, based on the entire record by a preponderance of the evidence, including Spanjers et al. and the Declaration, claims 1, 6, and 8 are patentable. Claims 2-3 and 5 are patentable over Spanjers et al. for at least the same reasons as claim 1 from which they depend. Claim 7 is patentable over Spanjers et al. for at least the same reasons as claim 6 from which it depends. Claim 9 is patentable over Spanjers et al. for at least the same reasons as claim 8 from which it depends. Applicants respectfully request a favorable reconsideration of the claims.

Claims 1, 2, 6, 8, and 10-12 were rejected under 35 USC 103(a) as being unpatentable over Nishi et al. (US 4847048). Applicants respectfully traverse.

The Office Action conceded that Nishi et al. fails to teach the specific sum and ratio of Ti to Zr.

The single claim of Nishi et al. requires 1-5.5 wt % of Ni. Nishi et al. teaches that "if the Ni content is less than about 4 wt %, the desired mechanical properties will not be attained" (column 4, lines 2-3). Nishi et al. teaches that the "alloy of the invention" is an alloy including

"1-5.5 wt % Ni" (column 3, lines 15-17). Further, Nishi et al. teaches an alloy "made of a ternary Al-Ni-Mg system" (see column 5, lines 31-32). Accordingly, Nishi et al. teaches an alloy that requires Ni.

Further, Nishi et al. teaches alloy samples 1-19, in which, every single example includes the element Ni (see TABLE 1). The alloy samples 1-19 of Nishi et al. have elongation of 1.5 % to 16.7 % (see TABLE 2). Of the alloy samples 1-19, only samples 4, 5, 7, and 10-15 were Nishi et al.'s "Present Inventions."

Further, Nishi et al. teaches alloys samples 1-15, in which, every single example includes the element Ni (see TABLE 3). These alloy samples have elongation of 3.9 % to 13.6 % (see TABLE 4). Of the alloy samples 1-15, only samples 2, 3, 6, 9, 10, and 14 were Nishi et al.'s "Present Inventions."

Nishi et al. does not teach or even suggest specifying the amounts and/or ratios of Ti and Zr to achieve a superior elongation. Nishi et al. does not even achieve the elongation disclosed in the above-referenced application and discussed in the Declaration.

Regarding claims 1, 2, 6, and 8, the claims require a sum (Ti + Zr) equal to or greater than 0.3 wt %, and a ratio (Ti/Zr) of at least 0.3 but not more than 2. Advantageously, this critical feature allows for superior elongation of equal to or greater than 20%, as shown in Fig. 1 in the Specification and in the Declaration. The advantages achievable by specifying the Ti+Zr amount and the Ti/Zr ratio as claimed are unexpected and not obvious in view of Nishi et al. Therefore, based on the entire record by a preponderance of the evidence, including Nishi et al. and the Declaration, claims 1, 6, and 8 are patentable. Dependent claim 2 is patentable over Nishi et al. for at least the same reasons as claim 1 from which it depends. Applicants respectfully request a favorable reconsideration of the claims.

The alloy according to claims 10-12 do not consist of Ni. Further, claims 10-12 require specific sum of Ti+Zr and specific ratio Ti/Zr, which Nishi et al. fails to teach. Accordingly, claims 10-12 are patentable over Nishi et al. Applicants respectfully request a favorable reconsideration of the claims.

Claims 1, 2, 6, 8, and 10-12 were rejected under 35 USC 103(a) as being unpatentable over Jin (JP 01-068440). Applicants respectfully traverse.

The claimed features are unrecognized in Jin. Further, the unexpected results that are achievable according to the claims are not obvious in view of Jin.

The Declaration discusses the Jin reference. Jin teaches an alloy having Ti as an optional element. Further, Jin teaches that if Ti is added to the alloy, Ti should be "coupled with the addition of B" to realize the "improvement" (page 7 of the English translation of Jin). Further, Jin teaches that Zr is an optional element, separately from Ti and B.

Pages 2-3 of the Declaration include comparisons of the alloys according to Jin to the alloys according to the claims. Alloys according to Jin (Jin 1, Jin 2, Jin 3, and Jin 4) do not have the sum (Ti+Zr) and ratio (Ti/Zr) as required by the claims. Further, the alloys according to Jin do not achieve the elongation (%) that are achievable by the alloys according to the claims.

The advantages achievable by specifying the Ti+Zr amount and the Ti/Zr ratio as claimed are unexpected and not obvious in view of Jin. Therefore, based on the entire record by a preponderance of the evidence, including Jin and the Declaration, claims 1, 2, 6, 8, and 10-12 are patentable. Applicants respectfully request a favorable reconsideration of the claims.

Claim 2 was rejected under 35 USC 103(a) as being unpatentable over Winkler, Spanjers et al., Jin, or Nishi et al., in further in view of Komazaki (US 2002/0141896). Applicants respectfully traverse.

Komazaki fails to remedy the deficiencies of Winkler, Spanjers et al., Jin, and Nishi et al. already stated above. Accordingly, claim 2 is patentable over Winkler, Spanjers et al., Jin, or Nishi et al., in further in view of Komazaki. Applicants respectfully request a favorable reconsideration of the claims.

Claims 3, 5, 7, and 9 were rejected under 35 USC 103(a) as being unpatentable over Winkler, Jin, or Nishi, in further view of Spanjers (US 2002/0006352 A1). Applicants respectfully traverse.

Claims 3 and 5 are patentable for at least the same reasons as claim 1 from which they depend. Claim 7 is patentable for at least the same reasons as claim 6 from which it depends. Claim 9 is patentable for at least the same reasons as claim 8 from which it depends. Applicants respectfully request a favorable reconsideration of the claims.

In view of the above, early issuance of a notice of allowance is solicited. Any questions regarding this communication can be directed to the undersigned attorney, Curtis B. Hamre, Reg. No. 29,165 at (612) 455-3802.

Respectfully submitted,

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Dated: August 7, 2009

By: 
Curtis B. Hamre
Reg. No. 29,165

CBH/ajk/mz

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	TOYODA et al.	Examiner:	SHEVIN, MARK L.
Serial No.:	10/518151	Group Art Unit:	1793
Filed:	November 18, 2004	Docket No.:	14225.0015USWO
Title:	HIGH TOUGHNESS DIE-CAST PRODUCT		

DECLARATION UNDER 37 CFR §1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

I, Yusuke Toyoda, one of the named inventors of the above-identified application, hereby declare as follows:

1. I graduated from Kansai university in 1993. My experience includes research and development of Aluminum material for 16 years. Thus, I am very familiar with the art relating to alloys.
2. I have studied Jin (JP 01-068440) and understand the teachings in the Jin reference.
3. The fact is that Jin does not teach an alloy having a specific Ti+Zr amount.
4. Another fact is that Jin does not teach an alloy having a specific Ti/Zr ratio.
5. Thus, Jin does not teach an alloy having a specific Ti+Zr amount and a specific Ti/Zr ratio.
6. Jin teaches an alloy in which Ti is an optional element. Further, Jin teaches that Ti is to be "coupled with the addition of B" and that specified amounts of both Ti and B are required for "significant improvement" to be realized (page 7 of the English translation of Jin, provided by the Examiner).
7. Jin teaches an alloy in which Zr is an optional element, separately from the addition of Ti and B.

8. Jin does not teach adding both Zr and Ti in an aluminum alloy.
9. Jin teaches an alloy wherein the Ti/Zr ratio has a range from zero to infinity. Thus, Jin does not even suggest specifying the ratio of Ti to Zr in an alloy.
10. Jin's "inventive alloys" have the composition shown below, (Jin 1, Jin 2, Jin 3, and Jin 4). For comparison, Examples 7-10 and 12-13 from the application are also shown below (Ex 7-10, 12-13).

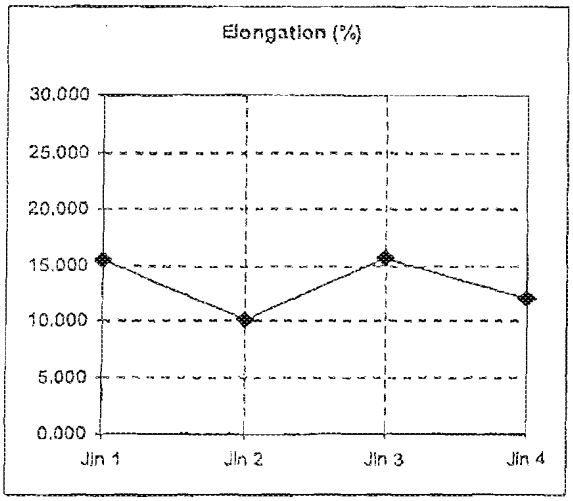
Alloy No.	Mg	Mn	Si	Fe	Ti	B	Zr	Al	Elongation (%)
Jin 1	4.210	1.330	0.530	0.290	0.100	0.003	0.000	Bal.	15.500
Jin 2	5.140	1.890	0.960	0.270	0.090	0.003	0.000	Bal.	10.100
Jin 3	4.200	1.070	0.580	0.290	0.070	0.003	0.000	Bal.	15.700
Jin 4	6.150	2.050	0.350	0.100	0.000	0.000	0.110	Bal.	12.100
Ex 7	4.000	1.000	0.200	0.200	0.075	0.000	0.225	Bal.	22.000
Ex 8	4.000	1.000	0.200	0.200	0.100	0.000	0.200	Bal.	24.000
Ex 9	4.000	1.000	0.200	0.200	0.150	0.000	0.150	Bal.	21.000
Ex 10	4.000	1.000	0.200	0.200	0.200	0.000	0.100	Bal.	20.000
Ex 12	4.000	1.000	0.200	0.200	0.165	0.000	0.335	Bal.	26.000
Ex 13	4.000	1.000	0.200	0.200	0.250	0.000	0.250	Bal.	22.000

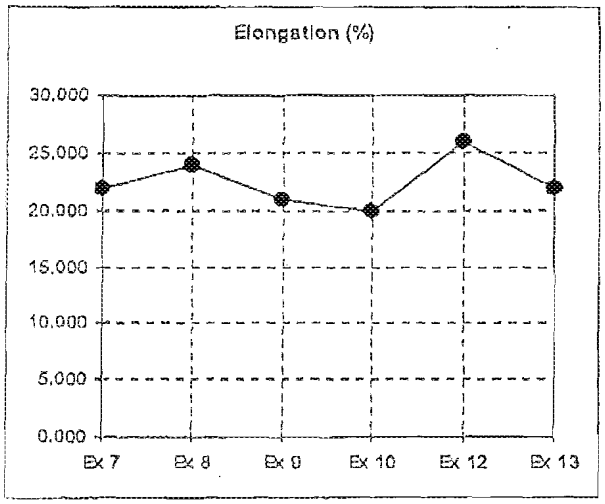
The above alloys are shown below along with calculated Ti+Zr amounts and Ti/Zr ratios.

Alloy No.	Elongation (%)	Ti	Zr	Ti+Zr	Ti/Zr
Jin 1	15.500	0.100	0.000	0.100	#DIV/0!
Jin 2	10.100	0.090	0.000	0.090	#DIV/0!
Jin 3	15.700	0.070	0.000	0.070	#DIV/0!
Jin 4	12.100	0.000	0.110	0.110	0.000
Ex 7	22.000	0.075	0.225	0.300	0.333
Ex 8	24.000	0.100	0.200	0.300	0.500
Ex 9	21.000	0.150	0.150	0.300	1.000
Ex 10	20.000	0.200	0.100	0.300	2.000
Ex 12	26.000	0.165	0.335	0.500	0.493
Ex 13	22.000	0.250	0.250	0.500	1.000

Jin 1, Jin 2, Jin 3, and Jin 4 have Ti+Zr amount range of 0.070 to 0.110. Jin 1, Jin 2, and Jin 3 do not have any Zr. Accordingly, Ti/Zr ratios for Jin 1, Jin 2, and Jin 3 cannot be calculated. Jin 4 does not have any Ti. Accordingly, the Ti/Zr ratio of Jin 4 is zero. According to Jin, the Ti/Zr ratio has a range from zero to infinity. Thus, Jin does not recognize controlling the ratio of Ti and Zr in an alloy.

The Elongation ratios (%) of Jin 1, Jin 2, Jin 3, and Jin 4 are in the range of 10.1 to 15.7. The Elongation ratios (%) of Ex 7-10 and 12-13 are in the range of 20 to 26.
Shown below are charts of the Elongation ratio (%) of the above alloys. The charts clearly show that Ex 7-10 and 12-13 have Elongation ratios superior to that of Jin 1, Jin 2, Jin 3, and Jin 4.





11. As shown above, alloy having the specified Ti+Zr amount and Ti/Zr ratio result in an alloy with superior physical properties, when compared to the alloys according to and taught in Jin.
12. Thus, the specific range of Ti+Zr and the specific range of Ti/Zr, as claimed in the application, are critical to the advantageous physical property of the alloy.
13. The advantages achievable by specifying the Ti+Zr amount and the Ti/Zr ratio in an aluminum alloy are unexpected in view of Jin.

14. The advantages and superiority of the alloys according to the specified Ti+Zr amounts and the specified Ti/Zr ratio are of statistical and practical significance over the alloys taught in Jin.
15. The advantages arising from having the specified Ti+Zr amount and Ti/Zr ratio cannot be achieved merely from the teachings in Jin.
16. I read and write English, and I understand this Declaration.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signed this 5 of August, 2009, at Utsunomiya, Tochigi, JAPAN.

Yusuke Toyoda.

Yusuke Toyoda